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Mary E. Golota			NILAND, PATRICK DENNIS	
Cantor Colburn LLP			ART UNIT	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/595,190

Applicant(s)

ALPERT ET AL.

Examiner

PATRICK NILAND

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-15, 17-23 and 29-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-15, 17-23 and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-940)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date 7/14/10
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/14/10 has been entered.

The amendment of 7/14/10 has been entered. Claims 1-4, 6-15, 17-23, and 29-33 are pending.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 30-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A. There is not basis in the originally filed specification for the lower endpoint "14" of the instant claims 30-31. Example 1 does not show the use of 14%. The newly recited range is therefore new matter. See *In re Wertheim*.

The examiner sees no response to this rejection. This rejection is therefore maintained.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-4, 6-15, 17-23, and 29-33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 7019042 Rockrath et al. in view of US Pat. No. 5064871 Sciangola and with the teachings of US Pat. No. 5204401 Anderson, Jr. et al., EP 19230, Heeringa et al., and US Pat. No. 4540734 Short et al. being further cited to support the instant rejection. Although the conflicting claims are not

identical, they are not patentably distinct from each other because the claims of Rockrath encompass the instantly claimed thixotropes including the crystalline morphologies of the instant claims at claim 10 of Rockrath. Rockrath does not disclose catalyzing the urea reaction with the instantly claimed bismuth catalysts. It would have been obvious to one of ordinary skill in the art to catalyze the instantly claimed urea reactions with the instantly claimed bismuth catalysts because Sciangola teaches that the instantly claimed bismuth catalysts are known to catalyze the urea reaction at the abstract, of which "isocyanate reactive compound" includes water and amines per column 2, lines 9-27; column 9, lines 6-12; and the remainder of the document, the catalyzation is expected to give the typical benefits of catalysis such as lowering the activation energy needed to start the reaction and shortening the time of reaction. The instant claims do not recite sufficient reaction conditions, such as temperature, ingredient types, sequence of ingredient addition, catalyst amounts, etc. to not encompass the urea thixotropic compositions of the claims of Rockrath. The presence of the bismuth catalyst is inherent in the obviousness statement regarding bismuth catalysts since it would be impossible to remove all of the bismuth from the product.

Claim 11 of Rockrath encompasses 0.1 to 10% by weight of the urea crystals. The broader claims encompass greater amounts thereof.

The applicant's arguments regarding the purpose of the catalyst in Sciangola are noted. However, Sciangola clearly shows the instantly claimed bismuth catalysts to catalyze the isocyanate/isocyanate reactive group reaction, including the amine/NCO reaction, and this catalysis would have been expected in the reactions of Rockrath. There is no showing of unexpected results commensurate in scope with the instant claims and the cited prior art

particularly considering catalyst amounts, specific differences in the various isocyanates and amines used and encompassed, reaction conditions including temperatures, and other material factors which the ordinary skilled artisan understands affect the urea reaction. The applicant's arguments of 1/17/08 have been fully considered. However, the claim language of Rockrath encompasses the instantly claimed combinations of amines and the amounts of the instant claims. There is nothing in the enabling disclosure of Rockrath to define the patented claims in any other way. Thus, it would have been obvious to one of ordinary skill in the art at the time of the instant claims to use the instantly claimed combinations of amines in the thixotrope of Rockrath's claimed invention because they are encompassed by the patented claims and would have been expected to give the disclosed thixotropy and the instantly claimed amount of thixotrope because it is also encompassed by Rockrath's patented claim language and would have been expected to give thixotropy in proportion to the amount of thixotrope used. There is no showing of unexpected results stemming from the differences between the instant claims and the patented claims of Rockrath in a manner commensurate in scope with the instant claims and the patented claims.

Claim 11 of Rockrath encompasses 0.1 to 10% by weight of the urea crystals. Newly amended claim 1 recites "wherein the rheological aid comprises the urea derivative from the reaction of (a1) and (a2) in an amount, based on the rheological aid, of more than 10% by weight." and the applicant argues that this excludes the catalyst (a3) that is in (A). At just greater than 10 percent (e.g. infinitesimally greater than 10%), the instant claims are encompassed. Within mathematical precision, "10" of the patentee and the instant claims encompass values that round to "10". Therefore, the instantly claimed "10" and the prior art "10" encompass 10.1 and

9.9, for example, both of which round off to 10 within the accuracy of the instantly claimed "10%" and the prior art "10". In other words, the instant claims read on 9.9 because 9.9 rounds up to 10 within the decimal accuracy of the instantly claimed "10%". 9.9 is clearly encompassed by the prior art and the instant claims therefore. Practical measuring error assures that one will use at least one molecule more or less than 10% when attempting to use the upper limit of the claimed range of Rockrath as often as not. This is not speculation. It is the subject of "accuracy and precision" taught in undergraduate chemistry courses and which is therefore well known. Furthermore, one molecule more than 10%, which falls within the scope of the instant claims, is expected to function equivalently to 10% of the instant claims. This is not speculative. It is based on the fact that one more molecule in about 10^{23} molecules of the average real life sample is expected to affect the properties about $1/10^{23}$, which is not measurable. The applicant's representative provides not probative evidence to the contrary, which is commensurate in scope with the instant claims and the cited prior art. The closeness of the endpoints of Rockrath's preferred and claimed range and the lower limit of the instant claims is such that these two points are obvious over each other. See MPEP 2144.05 [R-5] Obviousness of Ranges

"Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium

and 0.94% nickel, 0.31% molybdenum, balance titanium.).” The applicant’s arguments in this regard are therefore not persuasive. The examiner sees not probative showing of unexpected results stemming from any differences between the instant claims and the cited prior art, which are commensurate in scope with the instant claims and the cited prior art. The examiner sees no probative evidence that the full scope of bismuth catalysts encompassed by the instant claims and the cited prior art leads to an unexpected ability to use more urea crystals than used in the cited prior art in the compositions of the instant claims, which is commensurate in scope with the instant claims and the cited prior art, particularly the full breadth of the broad claims.

Regarding the larger amounts than those of Rockrath et al.’s patented claim 11, e.g. the instant claims 1, 29, and 30: Patented claim 11 clearly further limits the subject matter of claim 1 by definition of a dependant claim. It therefore stands to reason that claim 1 encompassed broader amounts than the patented claim 11 or else there would be no further limiting of the composition of claim 1. It would have been obvious to one of ordinary skill in the art at the time of the instantly claimed invention to use the instantly claimed amounts of urea derivative based on the rheological aid because the relatively slight increase in going from 10% of the patentee’s claims to 14% or even more will not give significantly different results in the rheological aid of the patentee’s claims, the larger amounts are clearly encompassed by the patentee’s claim 1, for the reasons noted above, and using more concentrated rheological aids, e.g. more urea derivative therein will give only predictable results to the composition, such as predictable viscosity and thixotropy and the ability to use less of the rheology aids in the compositions they are added to, and, if the rheology aids are to be shipped, as most commercial compositions are, shipping cost

per unit of rheology aid will be predictably reduced by the reduction of weight of non-thixotrope components in the rheological aid. No unexpected results are seen stemming from the use of the instantly claimed amounts of urea derivative in the rheology aid in going from 10% urea derivative to 14% urea derivative in a manner commensurate in scope with the instant claims and the cited prior art. It is noted that adding only 4 % more of an additive to 10% of the additive is not expected to materially affect the properties of the whole composition. The applicant's arguments that this is 40% more is misleading for the purposes of this rejection because the increased, small amount, based on the total composition, e.g. 4%, of the additive will not affect the whole composition's properties by 40%, but more likely only about 4%. See the examiner's arguments regarding Einstein's equation for viscosity in this regard.

There is no showing that "consisting essentially of" excludes anything from the compositions of the prior art claims because there is no showing that any additional components of the prior art materially affect the basic and novel characteristics of the instantly claimed rheological aid. See MPEP 2111.03 [R-3] Transitional Phrases. This remains the case. The applicant's representative's argument that zirconium catalyst is excluded by "consisting essentially" because it would materially affect the composition is not the test of the cited case law. Any additional component will materially affect the composition. It is required to materially affect the basic and novel characteristics of the composition to be excluded by "consisting essentially". This materially different test is not met. Arguments that closed language within the claims exclude additional components of the prior art are not commensurate in scope with the instant claims' recitations of open language in the preambles thereof, which includes the argued excluded materials. See MPEP 904.01 Analysis of Claims

The breadth of the claims in the application should always be carefully noted; that is, the examiner should be fully aware of what the claims do not call for, as well as what they do require. During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). See MPEP § 2111 - § 2116.01 for case law pertinent to claim analysis. The broadest reasonable interpretation of the instant claims consistent with the specification is that they include the additional components of the cited prior art because there is no teaching in the instant claims or remainder of the specification that excludes any of these components.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the instantly claimed inventions to use only the instantly claimed bismuth catalyst to catalyze the urea derivative of the patentee and their claims because Sciangola shows bismuth catalyst alone to be known for catalyzing the isocyanate reaction at column 1, lines 14-29 and the linear curing rate thereof would have been expected. The non-linear curing rate is not seen as being required for the instantly claimed and prior art urea derivatives which are relatively low molecular weight compounds that do not require the slow initial build up of viscosity because they are of relatively narrow molecular weight ranges and of relatively low molecular weights and the viscosity therefore will not change with building molecular weight, as is understood by the ordinary skilled artisan and from the definition of "viscosity average molecular weight", and to the clearly established relationship of viscosity to molecular weight by the definition of "viscosity average molecular weight". Note the monofunctional reactants of Rockrath, such as the benzylamine of column 17, lines 30-46 and monoamines of the paragraph bridging columns 4 and 5 will

necessarily terminate the reaction with polyisocyanate such that the reaction cannot "cure" to the extent discussed in Sciangola such that the cure rate and viscosity increase argued by the applicant's representative do not apply to the urea reaction of Rockrath. Since molecular weight cannot increase neither can viscosity by definition of "viscosity average molecular weight" at least. The applicant's arguments regarding the curing rates of the additional catalysts of Sciangola do not negate the fact that Sciangola shows the instantly claimed bismuth catalysts to be known for catalyzing the reaction of NCO with NCO reactive groups including amine groups (Sciangola, column 2, lines 9-22, noting the amine groups).

The compound comprising at least one activatable functional group of the copending claims falls within the scope of the instant claim 33 because these compounds can be oligomeric or polymeric, and thereby necessarily binders, and can physically and thermally cure and can crosslink thermally, and can dilute and are therefore reactive diluents which are curable.

The above is not the mere allegation of obviousness argued by the applicant's representative. It clearly meets the requirements of an obviousness rejection, including those of "KSR" and *Graham v. Deere*. See MPEP 2141-2145, noting that "KSR" does in fact include "obvious to try" as obviousness. The expectation of success in using higher amounts of urea crystals and bismuth catalyst is seen in the above cited prior art, including the broad recitation of Rockrath at column 4, lines 44-47, which the applicant does not address. The later narrowing ranges denoted by "preferably" or similar language do not teach away from using more urea crystals because preferred mode does not teach away. It is also taken that the preferred modes of Rockrath further limit the amounts of column 4, lines 44-47, indicating that these amounts may be larger than the preferred amounts.

It would have been obvious to one of ordinary skill in the art at the time of the instantly claimed invention to use the instantly claimed amounts of urea crystals in the compositions of Rockrath because these larger amounts are encompassed by Rockrath, column 4, lines 44-47 and column 4, lines 33-38, particularly where the compounds with activatable groups of column 4, lines 24-26 are used, which do not contain many groups that can hydrogen bond strongly with the urea crystals and such higher amounts of urea crystalline thixotropes are known, as evidenced by Heeringa, page 2, column 1, lines 36-44, of which "solid particles" indicates crystals because non-crystalline particles, i.e. amorphous particles, can flow, i.e. they are not truly solid.

See the explanation of thixotropy in Short, column 6, lines 3-30 for an explanation as to why this will lower the viscosity of the urea crystal composition. The applicant's argument that the increase of urea crystals over 10% in Rockrath will give too high of a viscosity to be processable is merely attorney argument which is not supported by probative evidence. See MPEP , particularly "Attorney argument is not evidence unless it is an admission, in which case, an examiner

may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of

attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.”

It remains the examiner’s position that the use of greater than 10% and 14% is within the scope of Rockrath, for the reasons stated above and would not be expected to give too high a viscosity, for the reasons stated above regarding the above cited sections of column 4 of Rockrath and column 6 of Short. Furthermore, if the viscosities are too high, one can merely add shear, e.g. stir them as is done in Rockrath, column 17, lines 42-43, which will thin the composition by definition of thixotrope, noting the examiner’s experience with thixotropes noted herein regarding Anderson, Jr. Note Heeringa, page 2, column 1, lines 36-44.

The applicant’s argument that the above is only "obvious to try" is not correct for the rationale and prior art teachings noted above. However, even if it is, “KSR” establishes “obvious to try” as an obviousness grounds. See MPEP 2141, particularly “Exemplary rationales that may support a conclusion of

obviousness include:

...

(E) “ Obvious to try ” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;”, which is what using the instantly claimed amounts of urea crystals from the disclosure of Rockrath, in combination with the above noted teachings of the cited prior art amounts to, at least.

The applicant’s representative questions why the numerous argued references do not specifically disclose the instantly claimed amounts of urea crystals. Note Heeringa, page 2, column 1, lines 36-44 as a rebuttal to this argument. It would truly require speculation and

conclusory statements on the part of the examiner to answer this question. The examiner was taught the very first day, 21 years ago, not to try to figure out why patent attorney's do what they do because the examiner does not have possession of the invention or knowledge of what the applicant and assignee want and desire. This remains true today. After 21 years of examining, the examiner still does not understand why patent attorney's do what they do often. Fortunately, such a determination is not required to make a prima facie case of obviousness. The above cited prior art makes this case of obviousness for the reasons stated above. The examiner sees no probative showing of unexpected results, stemming from the instantly claimed urea crystal amounts or bismuth catalysts or any other differences between the instant claims and the cited prior art, which is commensurate in scope with the instant claims and the cited prior art.

The applicant's arguments have been fully considered but are not persuasive for the reasons stated above. This rejection is therefore maintained for the reasons stated herein and those applied to the rejection of paragraph 7 below.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 6-15, 17-23, and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 100 42 152 as translated by US Pat. No. 7019042 Rockrath et al. in view of US Pat. No. 5064871 Sciangola and with the teachings of US Pat. No. 5204401 Anderson, Jr. et al., EP 19230, Heeringa et al., and US Pat. No. 4540734 Short et al. being further cited to support the instant rejection.

The instant claims are directed to the product per se, not the method of making the product. See MPEP 2113 in regard to product by process claims. The instant claims are directed to the compositions per se which appear to substantially encompass the compositions of Rockrath (note the entire disclosure including the claims, particularly claim 10), not the methods of making the compositions. The instant claims do not recite sufficient reaction conditions, such as temperature, ingredient types, sequence of ingredient addition, catalyst amounts, etc. to not encompass the urea thixotropic compositions of Rockrath. Thus, it appears that the compositions of the instant claims overlap those of the patentee. The fact that the crystalline morphology of the ureas of Rockrath's claims are those of the instant claims supports this conclusion. Note claim 10 of Rockrath.

Rockrath does not disclose the instantly claimed bismuth catalysts.

It would have been obvious to one of ordinary skill in the art to catalyze the instantly claimed urea reactions with the instantly claimed bismuth catalysts because Sciangola teaches that the instantly claimed bismuth catalysts are known to catalyze the urea reaction at the abstract, of which "isocyanate reactive compound" includes water and amines per column 2, lines 9-27; column 9, lines 6-12; and the remainder of the document, the catalyzation is expected to give the typical benefits of catalysis such as lowering the activation energy needed to start the reaction and shortening the time of reaction. The instant claims do not recite sufficient reaction conditions, such as temperature, ingredient types, sequence of ingredient addition, catalyst amounts, etc. to not encompass the urea thixotropic compositions of the claims of Rockrath. No unexpected results commensurate in scope with the instant claims and the cited prior art are seen, particularly considering the broad array of reaction conditions not specified by the instant claims.

As was stated regarding the amount of urea in the previous rejection, the catalyst would remain therein because it is impractical to impossible to remove it completely.

Claim 11 of Rockrath encompasses 0.1 to 10% by weight of the urea crystals, the upper limit thereof falling within the scope of the instantly claimed amounts of urea derivative of "more than 10% by weight" because the upper values of the upper amount of the prior art and the instantly claimed lower limit are within the scope of each other within the claimed mathematical precision and accuracy and within experimental error as one cannot measure with a single molecule accuracy and 10.01, for example rounds to the "10%" within the accuracy of Rockrath as well as the accuracy of the instantly claimed "10%". In other words, the instant claims read on 9.9 because 9.9 rounds up to 10 within the decimal accuracy of the instantly claimed "10%". Furthermore, Rockrath is not limited to only up to 10%. These are preferred amounts which do not teach away from using more urea in the thickener. Column 4, lines 44-47, particularly "vary widely" and guided by the intended rheological characteristics" is taken as encompassing values that vary widely from the preferred amounts and include the instantly claimed amounts of urea derivatives. It is also seen from the cited prior art that this amount is not resultant from the catalyst used. Thus, it is not seen that the amount is an unexpected result stemming from the instantly claimed catalyst. Column 4, lines 39-53 shows the claimed range to be preferred with the broad claim 1 and disclosure of Rockrath encompassing more than the preferred range of urea crystals. Newly amended claim 1 recites "wherein the rheological aid comprises the urea derivative from the reaction of (a1) and (a2) in an amount, based on the rheological aid, of more than 10% by weight." and the applicant argues that this excludes the catalyst (a3) that is in (A). At just greater than 10 percent (e.g. infinitesimally greater than 10%), the instant claims are

encompassed. Within mathematical precision, “10” of the patentee encompasses 10.1, which rounds off to 10. Practical measuring error assures that one will use at least one molecule more than 10% when attempting to use the upper limit of the preferred range of Rockrath as often as not. Furthermore, one molecule more than 10%, which falls within the scope of the instant claims, is expected to function equivalently to 10% of the instant claims.

This is not speculation. It is the subject of “accuracy and precision” taught in undergraduate chemistry courses and which is therefore well known. Furthermore, one molecule more than 10%, which falls within the scope of the instant claims, is expected to function equivalently to 10% of the instant claims. This is not speculative. It is based on the fact that one more molecule in about 10^{23} molecules of the average real life sample is expected to affect the properties about $1/10^{23}$, which is not measurable. The applicant’s representative provides not probative evidence to the contrary, which is commensurate in scope with the instant claims and the cited prior art.

The closeness of the endpoints of Rockrath’s preferred and claimed range and the lower limit of the instant claims is such that these two points are obvious over each other. See MPEP 2144.05 [R-5] Obviousness of Ranges “Similarly, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of “having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium” as obvious

over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium

and 0.94% nickel, 0.31% molybdenum, balance titanium.).”

The applicant’s arguments in this regard are therefore not persuasive. The examiner sees not probative showing of unexpected results stemming from any differences between the instant claims and the cited prior art, which are commensurate in scope with the instant claims and the cited prior art. The examiner sees no probative evidence that the full scope of bismuth catalysts encompassed by the instant claims and the cited prior art leads to an unexpected ability to use more urea crystals than used in the cited prior art in the compositions of the instant claims, which is commensurate in scope with the instant claims and the cited prior art, particularly the full breadth of the broad claims.

Thus, the amount of urea is not seen as distinguishing the instant claims from the urea thickener compositions of the instant rejection.

The applicant’s arguments regarding the purpose of the catalyst in Sciangola are noted. However, Sciangola clearly shows the instantly claimed bismuth catalysts to catalyze the isocyanate/isocyanate reactive group reaction, including the amine/NCO reaction, and this catalysis would have been expected in the reactions of Rockrath. This is the reason to expect success in using the catalysts of Sciangola in Rockrath’s urea reaction. There is no showing of unexpected results commensurate in scope with the instant claims and the cited prior art particularly considering catalyst amounts, specific differences in the various isocyanates and amines used and encompassed, reaction conditions including temperatures, and other material factors which the ordinary skilled artisan understands affect the urea reaction. The applicant’s arguments have been fully considered. However, the claim language and disclosure of Rockrath encompasses the instantly claimed combinations of amines and the amounts of the instant claims.

There is nothing in the enabling disclosure of Rockrath to define the patented claims in any other way. Thus, it would have been obvious to one of ordinary skill in the art at the time of the instant claims to use the instantly claimed combinations of amines in the thixotrope of Rockrath's disclosed invention because they are encompassed by the patentee's disclosure and would have been expected to give the disclosed thixotropy and the instantly claimed amount of thixotrope because it is also encompassed by Rockrath's disclosure and would have been expected to give thixotropy in proportion to the amount of thixotrope used. There is no showing of unexpected results stemming from the differences between the instant claims and the patentee's disclosed inventions in a manner commensurate in scope with the instant claims and the prior art cited.

It would have been obvious to one of ordinary skill in the art to catalyze the instantly claimed urea reactions with the instantly claimed amounts of the instantly claimed bismuth catalysts because such amounts are encompassed by the broad disclosure of Sciangola, particularly at column 3, lines 58-61 and more particularly at column 3, lines 16-68; column 4, lines 1-68; column 5, lines 1-68; and column 6, lines 1-24 with the higher amounts of lower molecular weight bismuth catalysts disclosed therein and the amounts of polyisocyanate chosen with regard to molar amounts and molecular weights that give the requirements of column 6, lines 4-16 and the choice of molecular weight and molar amounts of the NCO reactive components thereof being chosen such that the instantly claimed ratio of NCO:Bi of the instant claims 14 and 29 is encompassed, the instantly claimed NCO:Bi ratios would have been expected to catalyze the urea formation of Rockrath per the disclosure of Sciangola and per the definition of "catalyst", which is not consumed during the reaction. No showing of unexpected results is seen stemming from the instantly claimed NCO:Bi ratio in a manner commensurate in

scope with the instant claims and the cited prior art, particularly considering the broad array of reaction conditions not claimed that materially affect the product produced. These factors are mentioned above, though the list is not complete as would be appreciated by the ordinary skilled artisan.

The above rejection meets the requirements of *Graham v. Deere* and MPEP 2141 and 2143, particularly per the "KSR" decision noted therein. The expectation of success stems from the fact that the bismuth catalyst is shown to catalyze the reaction of Rockrath in Sciangola. The applicant's arguments regarding the unpredictability of catalyst action are not persuasive. The same catalytic activity obtained in Sciangola is expected in the reaction of Rockrath. There is no probative showing that any unexpected result occurs due to the use of the instantly claimed bismuth catalysts that is commensurate in scope with the instant claims, as noted above. No unpredictability of the bismuth catalyst discussed above has been demonstrated in a probative manner. The prima facie expectation is that the bismuth catalyst will function as required because it is known to catalyze the NCO/active hydrogen reaction as shown by Sciangola. The instant claims recite "comprising" and therefore include the zirconium catalysts of Sciangola also, though these were not necessarily required by the above rejection as Sciangola is taken to suggest that the bismuth catalyst catalyzes the NCO/active hydrogen reaction by itself. Potlife is not a problem in Rockrath due to the monofunctional compounds and lack of polyfunctional compounds, as would be appreciated by the ordinary skilled artisan. Again, no unexpected result stems from the use of the instantly claimed bismuth compound and it is expected to catalyze the NCO/active hydrogen reaction of Rockrath just as it catalyzes the NCO/active hydrogen reaction of Sciangola. The above meets the requirements of *In re Rinehart* and *Graham v. Deere*, argued

by the applicant, as well as the “KSR” decision noted above. The argument of “curing catalyst” does not change the fact that the bismuth catalysts of the cited prior art are known to catalyze the NCO/active hydrogen reaction and would have been expected to catalyze that same reaction in Rockrath. The use of known catalysts to catalyze analogous reactions to those that they are known to catalyze is clear evidence of the prima facie case of obviousness made above.

The argument that the instantly claimed catalysts give improved solubility, in a rheological agent such that a greater concentration of said urea crystal can be present in the rheological agent as compared to the prior art, to the urea crystals is not supported by probative evidence and is rebutted by the use of the instantly claimed amount of urea crystals by Rockrath, as stated above. This argument is not commensurate in scope with the claims and the cited prior art. Nor is the amount of urea crystals in the rheology aid shown to be a function of the bismuth catalysts claimed. Common knowledge and common sense dictate that if the bismuth catalyst catalyzes the NCO/active hydrogen reactions of Sciangola then it will also catalyze that of Rockrath. The applicant's arguments regarding DyStar v. Patrick Co. are therefore not persuasive. There is no probative evidence cited that the NCO/active hydrogen reactions of Sciangola differ materially from those of the instant claims and Rockrath. The applicant's arguments regarding NCO/NCO active group reactions varying widely and producing a wide array of products is not commensurate in scope with the instant claims and the cited prior art, both of which encompass the instantly claimed NCO/NH reaction to give urea groups. The potlife argument is addressed above.

The applicant's arguments regarding claims 1 and 29 and the argued increased concentration of urea crystals in the rheology agents therein are addressed above.

The prior art cited above, evaluated as a whole, shows that it is in fact *prima facie* obvious to use the bismuth catalyst to catalyze the reaction of Rockrath for the reasons stated above. The applicant's arguments to the contrary ignore the state of the art and the ordinary skilled artisan's considerations in choosing catalysts. Furthermore, no unexpected results have been shown to stem from the use of the instantly claimed catalysts in a manner commensurate in scope with the instant claims and the cited prior art, particularly considering the vast array of reaction conditions encompassed by the cited prior art and the instant claims.

The above does not "ignore" the instantly claimed recitation of "more than 10%" clearly. The above arguments in regard to the instantly claimed amounts of urea derivative are not overcome by the applicant's arguments for the reasons stated above. Rockrath is not limited to its examples. Arguments regarding the amounts of urea therein are not persuasive because they do not consider the full teachings of Rockrath in this regard, as noted above. The applicant's argument regarding their working examples' amounts of urea derivative and those of Rockrath are not commensurate in scope with the full disclosure of Rockrath, as noted above, and the full scope of the instant claims. No unexpected results are seen, as stated above.

Regarding the larger amounts than those of Rockrath et al.'s patented claim 11, e.g. the instant claims 1, 29, and 30: Patented claim 11 clearly further limits the subject matter of claim 1 by definition of a dependant claim. It therefore stands to reason that claim 1 encompassed broader amounts than the patented claim 11 or else there would be no further limiting of the composition of claim 1. It would have been obvious to one of ordinary skill in the art at the time of the instantly claimed invention to use the instantly claimed amounts of urea derivative based on the rheological aid because the relatively slight increase in going from 10% of the patentee's

claims to 14% or even more will not give significantly different results in the rheological aid of the patentee's claims, the larger amounts are clearly encompassed by the patentee's claim 1, for the reasons noted above, and using more concentrated rheological aids, e.g. more urea derivative therein will give only predictable results to the composition, such as predictable viscosity and thixotropy and the ability to use less of the rheology aids in the compositions they are added to, and, if the rheology aids are to be shipped, as most commercial compositions are, shipping cost per unit of rheology aid will be predictably reduced by the reduction of weight of non-thixotrope components in the rheological aid. No unexpected results are seen stemming from the use of the instantly claimed amounts of urea derivative in the rheology aid in going from 10% urea derivative to 14% urea derivative in a manner commensurate in scope with the instant claims and the cited prior art. It is noted that adding only 4 % more of an additive to 10% of the additive is not expected to materially affect the properties of the whole composition. The applicant's arguments that this is 40% more is misleading for the purposes of this rejection because the increased, small amount, based on the total composition, e.g. 4%, of the additive will not affect the whole composition's properties by 40%, but more likely only about 4%. See the examiner's arguments regarding Einstein's equation for viscosity in this regard.

There is no showing that "consisting essentially of" excludes anything from the compositions of the prior art claims because there is no showing that any additional components of the prior art materially affect the basic and novel characteristics of the instantly claimed rheological aid. See MPEP 2111.03 [R-3] Transitional Phrases. This remains the case. The applicant's representative's argument that zirconium catalyst is excluded by "consisting essentially" because it would materially affect the composition is not the test of the cited case

law. Any additional component will materially affect the composition. It is required to materially affect the basic and novel characteristics of the composition to be excluded by "consisting essentially". This materially different test is not met. Arguments that closed language within the claims exclude additional components of the prior art are not commensurate in scope with the instant claims' recitations of open language in the preambles thereof, which includes the argued excluded materials. See MPEP 904.01 Analysis of Claims

The breadth of the claims in the application should always be carefully noted; that is, the examiner should be fully aware of what the claims do not call for, as well as what they do require. During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). See MPEP § 2111 - § 2116.01 for case law pertinent to claim analysis. The broadest reasonable interpretation of the instant claims consistent with the specification is that they include the additional components of the cited prior art because there is no teaching in the instant claims or remainder of the specification that excludes any of these components.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the instantly claimed inventions to use only the instantly claimed bismuth catalyst to catalyze the urea derivative of the patentee and their claims because Sciangola shows bismuth catalyst alone to be known for catalyzing the isocyanate reaction at column 1, lines 14-29 and the linear curing rate thereof would have been expected. The non-linear curing rate is not seen as being required for the instantly claimed and prior art urea derivatives which are relatively low molecular weight compounds that do not require the slow initial build up of viscosity because they are of relatively

narrow molecular weight ranges and of relatively low molecular weights and the viscosity therefore will not change with building molecular weight, as is understood by the ordinary skilled artisan and from the definition of "viscosity average molecular weight", and to the clearly established relationship of viscosity to molecular weight by the definition of "viscosity average molecular weight". Again, column 4, lines 44-53, particularly "vary widely" is noted as well as the fact that preferred mode does not teach away from using the larger amounts of Rockrath's column 4, lines 44-47 encompassed by "vary widely".

Note the monofunctional reactants of Rockrath, such as the benzylamine of column 17, lines 30-46 and monoamines of the paragraph bridging columns 4 and 5 will necessarily terminate the reaction with polyisocyanate such that the reaction cannot "cure" to the extent discussed in Sciangola such that the cure rate and viscosity increase argued by the applicant's representative do not apply to the urea reaction of Rockrath. Since molecular weight cannot increase neither can viscosity by definition of "viscosity average molecular weight" at least. The applicant's arguments regarding the curing rates of the additional catalysts of Sciangola do not negate the fact that Sciangola shows the instantly claimed bismuth catalysts to be known for catalyzing the reaction of NCO with NCO reactive groups including amine groups (Sciangola, column 2, lines 9-22, noting the amine groups).

The compound comprising at least one activatable functional group of the copending claims falls within the scope of the instant claim 33 because these compounds can be oligomeric or polymeric, and thereby necessarily binders, and can physically and thermally cure and can crosslink thermally, and can dilute and are therefore reactive diluents which are curable. See the definition of the claimed term at column 3, lines 23-67 and column 4, lines 1-38, noting

particularly column 4, lines 23-26, which liquid additives are expected to give the amounts of urea crystals within the broad amounts of column 4, lines 44-47, e.g. "The amount of the urea crystals in the thixotropic agent of the invention may vary widely and is guided in particular by the intended rheological characteristics of the coating materials, adhesive and sealing compounds of the invention."

The examiner cites Anderson, Jr. because the applicant in that case, which has the same assignee as the instant application, gave the examiner a jar of hectorite clay in water and a jar of hectorite clay in ppg of molecular weight 10,000. Both compositions exhibited thixotropy and did not flow significantly when little shear was applied, e.g. only that of gravity. The ppg containing jar did not show as great an increase in viscosity under low shear because the ppg could not create as many hydrogen bonds and other secondary bonds with the clay per unit volume as could water because it has less groups to hydrogen bond strongly than does water per unit volume. Short, column 6, lines 3-30 shows how thixotropes work and shows that shear decreases the viscosity of the thixotropic mixture significantly. In the above examples seen by the examiner, the viscosity went back to that of about water under mild shear, e.g. lightly shaking the jar. It is noted that upon evaporation of the water some months later, it was apparent that the jar in question had much less than 10wt% clay. I would guess that there was less than 1% clay though the applicant would have the actual numbers probably.

What is clear is that shear reduces the viscosity of the thixotrope dramatically, as is taught by Short to even occur for urea thixotropes, particularly if they are in solvent which does not give as much secondary bonding with the urea thixotrope (Note the above ppg example and Short, column 6, lines 3-22, particularly 19-22.).

It is noted that Einstein's equation for viscosity, which is well known because it is Einstein's and it was taught to the examiner in undergraduate physical chemistry lab, is $\text{viscosity} = \text{viscosity of the solvent} * (1 + (2.5 * \text{volume fraction of neutrally buoyant spheres}))$. It is noted that this is an idealized equation though it is applicable, via modifications accounting for differences in the idealized assumptions above, much as there are modifications of the ideal gas law which involve adding correction factors thereto, so as to arrive at real life useful applications of this equation. The examiner used it to determine the molecular weight of styrene relatively accurately. It shows that merely adding 4wt% of the spheres to 10wt% thereof is not mathematically expected to increase the viscosity of the composition by 40%, because clearly the overall composition viscosity is controlled by the volume fraction that is largest, the solvent plus 10wt% of the spheres in this example. The applicant's representatives argument that going from 10wt % urea crystals to 14wt% thereof represents an increase of 40% of the amount thereof is therefore not consistent with practical considerations of going from 10wt% of an additive to 14wt% thereof. One does not experience a 40% change in composition properties in adding slightly more of an additive, e.g. 4wt% of the composition in this example. While the applicant's representative's argument is a common means used to make the increase from 10wt% to 14wt% appear larger than it is, practical considerations of adding only 4wt% more of an additive show that this small increase in amounts only affects the properties of the composition by a similar small amount, as evidenced by mathematical consideration of the well known Einstein's equation for viscosity. The applicant's argument to the effect that going from 10wt% to 14wt% is a large increase is therefore not persuasive or technically correct.

The above is not the mere allegation of obviousness argued by the applicant's representative. It clearly meets the requirements of an obviousness rejection, including those of "KSR" and *Graham v. Deere*. See MPEP 2141-2145, noting that "KSR" does in fact include "obvious to try" as obviousness. The expectation of success in using higher amounts of urea crystals and bismuth catalyst is seen in the above cited prior art, including the broad recitation of Rockrath at column 4, lines 44-47, which the applicant does not address. The later narrowing ranges denoted by "preferably" or similar language do not teach away from using more urea crystals because preferred mode does not teach away. It is also taken that the preferred modes of Rockrath further limit the amounts of column 4, lines 44-47, indicating that these amounts may be larger than the preferred amounts.

It would have been obvious to one of ordinary skill in the art at the time of the instantly claimed invention to use the instantly claimed amounts of urea crystals in the compositions of Rockrath because these larger amounts are encompassed by Rockrath, column 4, lines 44-47 and column 4, lines 33-38, particularly where the compounds with activatable groups of column 4, lines 24-26 are used, which do not contain many groups that can hydrogen bond strongly with the urea crystals and such higher amounts of urea crystalline thixotropes are known, as evidenced by Heeringa, page 2, column 1, lines 36-44, of which "solid particles" indicates crystals because non-crystalline particles, i.e. amorphous particles, can flow, i.e. they are not truly solid.

See the explanation of thixotropy in Short, column 6, lines 3-30 for an explanation as to why this will lower the viscosity of the urea crystal composition. The applicant's argument that the increase of urea crystals over 10% in Rockrath will give too high of a viscosity to be

processable is merely attorney argument which is not supported by probative evidence. See MPEP , particularly "Attorney argument is not evidence unless it is an admission, in which case, an examiner

may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration."

It remains the examiner's position that the use of greater than 10% and 14% is within the scope of Rockrath, for the reasons stated above and would not be expected to give too high a viscosity, for the reasons stated above regarding the above cited sections of column 4 of Rockrath and column 6 of Short. Furthermore, if the viscosities are too high, one can merely add shear, e.g. stir them as is done in Rockrath, column 17, lines 42-43, which will thin the composition by definition of thixotrope, noting the examiner's experience with thixotropes noted herein regarding Anderson, Jr. Note Heeringa, page 2, column 1, lines 36-44.

The applicant's argument that the above is only "obvious to try" is not correct for the rationale and prior art teachings noted above. However, even if it is, "KSR" establishes "obvious

to try” as an obviousness grounds. See MPEP 2141, particularly “Exemplary rationales that may support a conclusion of

obviousness include:

...

(E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;”, which is what using the instantly claimed amounts of urea crystals from the disclosure of Rockrath, in combination with the above noted teachings of the cited prior art amounts to, at least.

The applicant’s representative questions why the numerous argued references do not specifically disclose the instantly claimed amounts of urea crystals. See page 2, column 1, lines 36-44 of Heeringa et al. in rebuttal to this statement. It would truly require speculation and conclusory statements on the part of the examiner to answer this question. The examiner was taught the very first day, 21 years ago, not to try to figure out why patent attorney’s do what they do because the examiner does not have possession of the invention or knowledge of what the applicant and assignee want and desire. This remains true today. After 21 years of examining, the examiner still does not understand why patent attorney’s do what they do often. Fortunately, such a determination is not required to make a prima facie case of obviousness. The above cited prior art makes this case of obviousness for the reasons stated above. The examiner sees no probative showing of unexpected results, stemming from the instantly claimed urea crystal amounts or bismuth catalysts or any other differences between the instant claims and the cited prior art, which is commensurate in scope with the instant claims and the cited prior art.

The applicant's arguments have been fully considered but are not persuasive for the reasons stated above and because of the teachings of the cited prior art. This rejection is therefore maintained for the reasons stated herein and those applied to the rejection of paragraph 5 above.

8. Claims 1-4, 6-15, 17-23, and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 192304 Heeringa et al. in combination with the teachings of US Pat. No. 5064871 Sciangola.

Heeringa discloses the instantly claimed amounts of urea crystalline thixotropes at page 2, column 1, lines 36-44, of which "solid particles" indicates crystals because non-crystalline particles, i.e. amorphous particles, can flow, i.e. they are not truly solid, in combination with the instantly claimed additives in liquid form. See the entirety of Heeringa.

Heeringa does not disclose using the instantly claimed bismuth catalyst.

It would have been obvious to one of ordinary skill in the art to use the instantly claimed bismuth catalysts to catalyze formation of the urea thixotropes of Heeringa because they are known to catalyze the NCO + NH reaction, as discussed in the above rejections citing Sciangola and the same rationales in this regard as cited above also apply to Heeringa for the same reasons, and Heeringa encompasses catalyzing their later reactions, and since catalyst is not consumed by definition, it will be present to catalyze the later reactions of Heeringa, e.g. page 5, column 8, lines 30-44, noting that the reaction conditions including temperatures and heating times can be varied within Heeringa, e.g. page 3, column 3, lines 58-65 and page 4, column 5, lines 58-62 to give the desired reaction rates/curing rates.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK NILAND whose telephone number is (571)272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Patrick D Niland/
Primary Examiner
Art Unit 1762